# Development of a ‘Practical Sourcebook on Mercury Storage and Disposal’

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# Background

- Unsound management of mercury and mercury waste is an important source of mercury releases
- Future excess supply will increase the need for ESM significantly
- Work of the Partnership areas on supply and storage, waste management and products

UNEP

*GC Decision 25/5*:

Requested UNEP to **enhance capacity for mercury storage** and **provide information on the sound management** of mercury and mercury wastes.

Relevant provisions of the Minamata Convention:

**Art. 10**: Environmentally sound interim storage of mercury, other than waste mercury

**Art. 11**: Mercury wastes

# What is the Sourcebook?

**Objective:**
**to enhance the capacity of governments to develop environmentally sound strategies for the interim storage of mercury other than waste mercury and the management of mercury wastes**

| | | |
|---|---|---|
| Practical, informational document; short, graphical and illustrative; clearly written | Operationalizes the Basel Technical Guidelines and complements the Good Practices document | Will be compiled by International Solid Waste Association (ISWA) |

- Timeframe: November 2013 - June 2014

# Sources

The Sourcebook will draw on:

- **Existing work within the Partnership areas**
- **Relevant reports and publications**
- **Input from an Expert Group**


The Expert Group will be comprised of independent experts in the field of storage and waste management, representatives from various governments, IOs, industry, academia, as well as other relevant stakeholders.

# Mercury Storage and Disposal Projects in Latin America

The projects were implemented in Argentina and Uruguay (2011-2012) as well as Mexico and Panama (2012-2013).

- Inventories were conducted, relevant regulatory frameworks reviewed and existing hazardous waste treatment facilities surveyed
- A decision-making process was initiatied and National Action Plans (NAPs) developed
- Basic management options and potential sites for interim storage were identified

*Source: Project for storage and disposal of mercury in Panama, final report, 08.2013*

*Source: INTI, Proyecto "Almacenamiento y disposición ambientalmente adecuados de mercurio elemental y sus residuos en la República Argentina*

# Findings and Recommendations

**Uruguay**

- Main sources: chlor-alkali, dental amalgam, electrical switches
- Chlor-alkali plant + industrial waste landfill best suited for interim storage

➢ Revise the relevant regulatory framework
➢ Invest in infrastructure for treatment of mercury-containing waste

**Argentina**

- Main sources: health sector, chlor-alkali, light bulbs
- 4 hazardous waste security landfills suited for interim storage

➢ Enhance analysis of potential interim storage facilities
➢ Make a more detailed inventory
➢ Advance regulations enabling transfer of wastes to domestic facilities and draft specific instruments for mercury wastes

# Findings and Recommendations

UNEP

**Mexico**

- Main sources: gold extraction and processing, batteries, landfills
- 2 security landfills best suited for interim storage

➢ Update the inventory and proceed with development of the NAP
➢ Develop specific instruments for mercury waste management
➢ Continue assessment of geologic formations for disposal

**Panama**

- Main sources: batteries, informal waste dumping, cement production
- One option each identified for interim storage of elemental mercury (bunkers) and mercury-containing waste (landfills)

➢ Foster institutional coordination and improve regulatory framework
➢ Conduct periodic updates of the inventory and validate results
➢ Adapt bunkers for interim storage and incorporate retorting technology

# Expected Outcomes

Increased capacity of relevant national and/or regional decision-makers, especially in developing countries and countries with economies in transition, to…

- …assess the national situation in terms of sources and volumes of mercury and mercury wastes, relevant regulatory frameworks and existing hazardous waste treatment facilities
- …choose from the technological options available for interim storage, treatment and disposal given a specific set of national circumstances
- …develop and implement environmentally sound strategies for the interim storage of mercury and the management of mercury wastes

# Components

## Practical Sourcebook on Mercury Storage and Disposal

UNEP

### Description of Situation and Specific Storage/Disposal Options

- Sources, types, volumes of mercury wastes
- Survey of regulatory frameworks, facilities etc.
- Storage and disposal options
- Treatment technologies

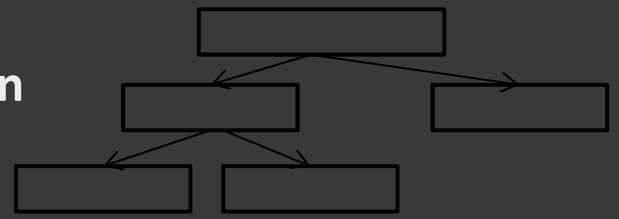
### Development of a Storage/Disposal Strategy

- Parameters for selecting an option
- Features and typical requirements of an option
- Requirements for transboundary movement of waste
- Financial and legal implications

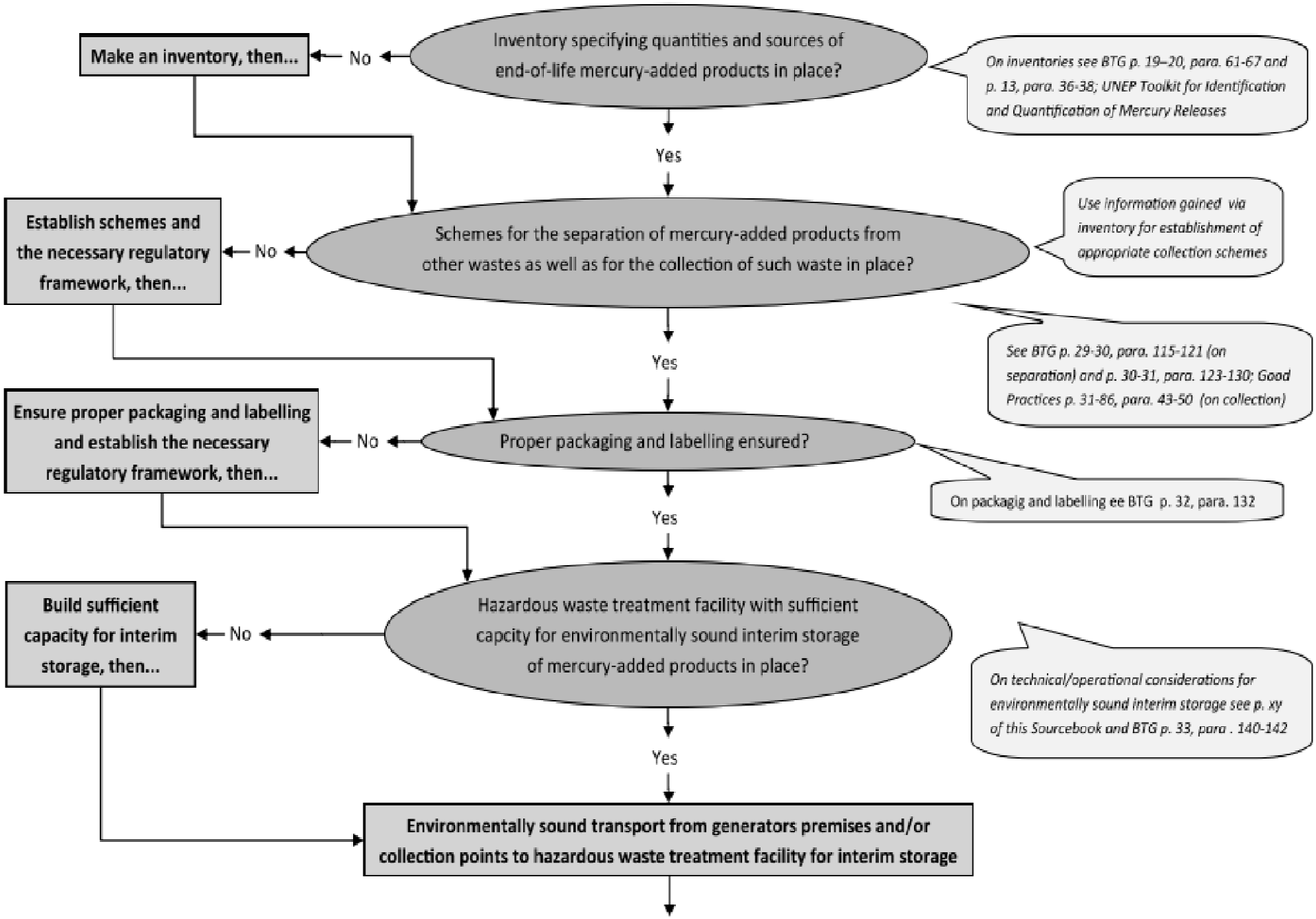
### Examples of Good Practices/ Case Studies

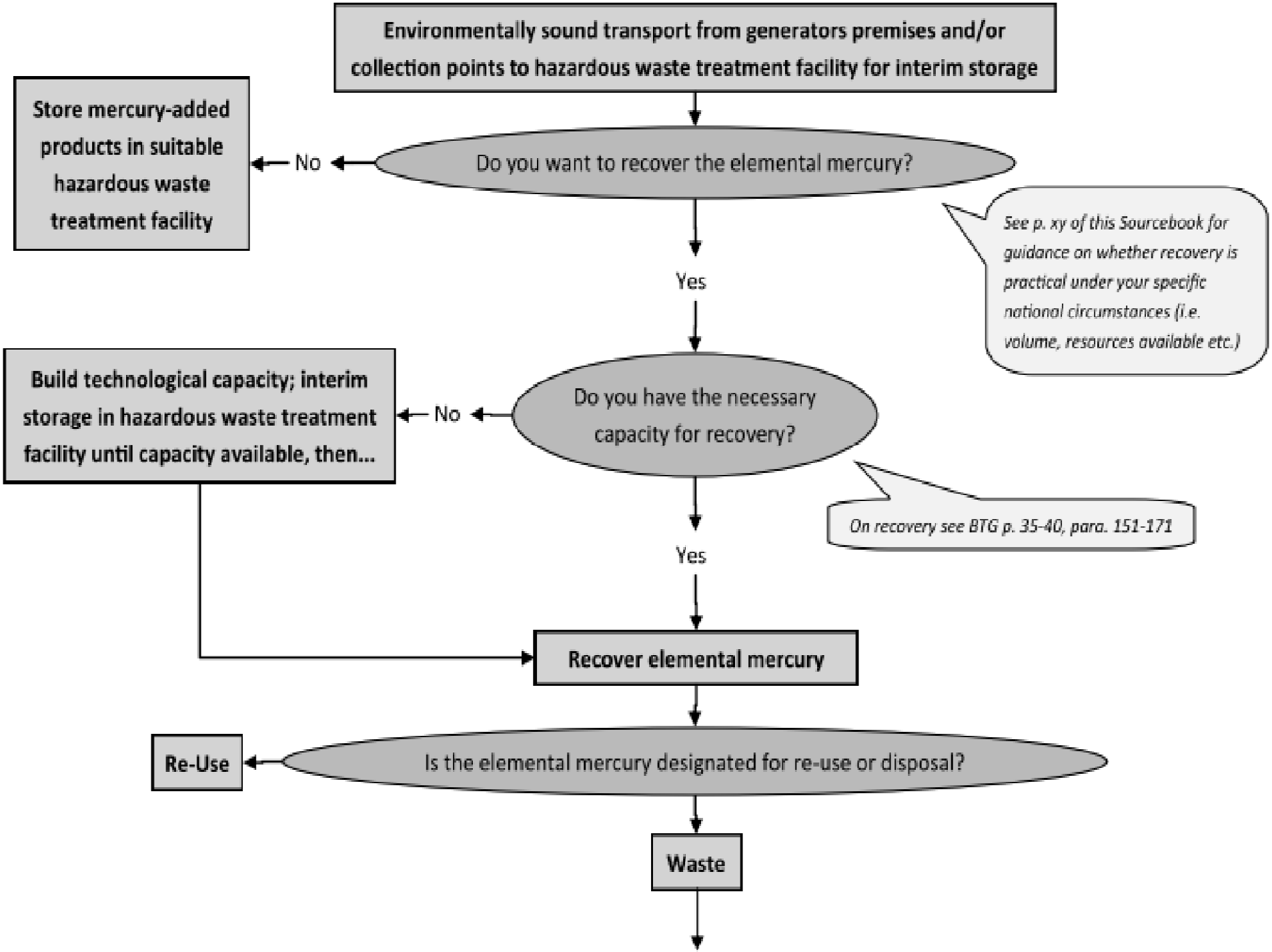
- Description of situation
- Options considered and selected
- Description of implemented strategy and selected facility
- Regulatory framework
- Costs
- Lessons learnt

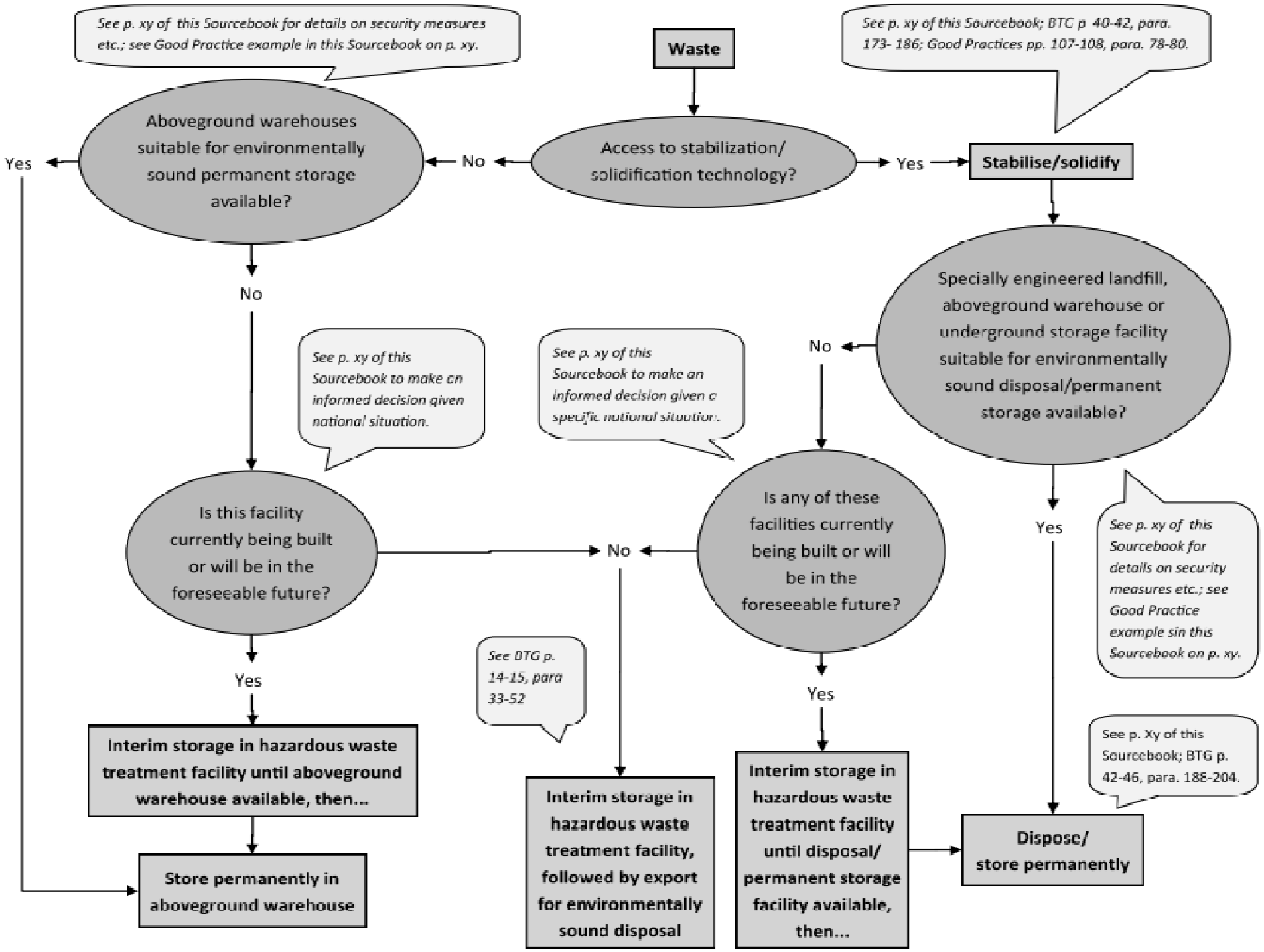
### Decision Trees



# Sample Decision Tree: Environmentally Sound Management of Mercury-Added Products




Environmentally sound transport from generators premises and/or collection points to hazardous waste treatment facility for interim storage
Do you want to recover the elemental mercury?
No
Store mercury-added products in suitable hazardous waste treatment facility
Yes
See p. xy of this Sourcebook for guidance on whether recovery is practical under your specific national circumstances (i.e. volume, resources available etc.)
Do you have the necessary capacity for recovery?
No
Build technological capacity; interim storage in hazardous waste treatment facility until capacity available, then...
On recovery see BTG p. 35-40, para. 151-171
Yes
Recover elemental mercury
Is the elemental mercury designated for re-use or disposal?
Re-Use
Waste


Waste
Access to stabilization/ solidification technology?
No
Yes
See p. xy of this Sourcebook; BTG p 40-42, para. 173- 186; Good Practices pp. 107-108, para. 78-80.
Stabilise/solidify
Specially engineered landfill, aboveground warehouse or underground storage facility suitable for environmentally sound disposal/permanent storage available?
No
Yes
See p. xy of this Sourcebook for details on security measures etc.; see Good Practice example sin this Sourcebook on p. xy.
Dispose/ store permanently
See p. Xy of this Sourcebook; BTG p. 42-46, para. 188-204.
Aboveground warehouses suitable for environmentally sound permanent storage available?
Yes
No
See p. xy of this Sourcebook for details on security measures etc.; see Good Practice example in this Sourcebook on p. xy.
Store permanently in aboveground warehouse
Is this facility currently being built or will be in the foreseeable future?
Yes
No
See p. xy of this Sourcebook to make an informed decision given national situation.
Interim storage in hazardous waste treatment facility until aboveground warehouse available, then...
Is any of these facilities currently being built or will be in the foreseeable future?
Yes
No
See p. xy of this Sourcebook to make an informed decision given a specific national situation.
See BTG p. 14-15, para 33-52
Interim storage in hazardous waste treatment facility, followed by export for environmentally sound disposal
Interim storage in hazardous waste treatment facility until disposal/ permanent storage facility available, then...

# Examples of Good Practice / Case Studies

UNEP

- US: 4,436 mt of mercury stockpiles were collected and stored in Nevada in aboveground warehouses
- Stringent safety criteria (e.g. flooring, collection slump, fire protection, frequent inspection)
- Costs: e.g. $3,875,000 for warehouse improvements

*Source: Defense Logistics Agency, Defense National Stockpile Center, US, Dennis M. Lynch, Latin America Mercury Storage Inception Workshop, April 22, 2009*

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# Examples of Good Practice / Case Studies

- Peru recovered by-product mercury from open-pit large-scale gold mines
- Recovered mercury was exported for processing
- Cost of export: < $1,00/kg

Remaining challenge:
Peru does not have facilities for permanent storage

*Source: Mercury: Important By-Product From Peru's Large-Scale Gold Mines, Ministerio de Salud, Direccion General de Salud Ambiental, Peru, presentation held during the consultation meeting on waste and storage, Geneva, September 23, 2010*

# Schedule

| Activity | Month | | | | | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 1a) Administrative and logistical preparation<br>1b) Establishment of the EG | | | | | | |
| 2a) Collection of relevant materials and documents, preparation of a brief guideline on how to document Good Practices<br>2b) Request for information from the expert group and other relevant stakeholders | | | | | | |
| 3) Drafting of a working document | | | | | | |
| 4) Feedback by the EG members on the working document | | | | | | |
| 5a) Drafting of a consolidated version of the working document<br>5b) Distribution of the draft sourcebook and request for feedback from the EG | | | | | | |
| 6) Electronic consultative process with the EG | | | | | | |
| 7) Finalization of the sourcebook | | | | | | |
| 8) Layout and graphic design | | | | | | |
| 9a) Creation of a dedicated webpage and interactive tools<br>9b) Printing, launch and dissemination | | | | | | |

# Thank you for your attention

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